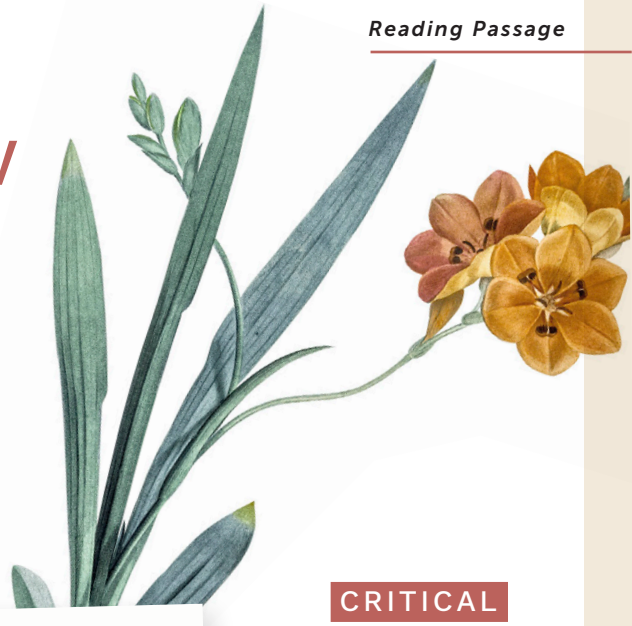
How Do Plants Know When to Bloom?

What we can learn about seasons and climate change from observing plants.



The life cycle of a plant is made up of different seasonal life stages, or **phenophases**, that you can easily observe. Think about when you notice leaves falling from trees in the fall or see flowers in full bloom in the spring. Those are examples of phenophases. The study of how changing seasons and climate affect the timing of plant life cycles is called **phenology**.

Knowing the schedule of plant development helps farmers and gardeners decide the best time to plant crops. Phenology helps regular people (and kids like you!) too. If you have springtime allergies, for example, it's good to know when the flowers that make you sneeze are in bloom. Or when you notice the leaves changing color in the fall, that's a signal that it's time to pull out your warm sweaters!

Plants grow when they get enough sunlight, air, and water, and when the temperature is right. Weather and climate both play a key role. **Weather** refers to daily changes in the local atmosphere (whether it's going to be hot, rainy, or cold outside on a particular day). **Climate** means changes in the atmosphere over a much larger area and longer period of time. So if it is unusually hot for a few days in June, that's the weather. But if it stays hotter than normal for the whole month of June, and this pattern happens many years in a row, it means the climate in your region has changed.

Today, the Earth's climate is warming. Increasing temperatures cause spring to arrive earlier than it used to, which means that plants bloom earlier too. This shift in the seasons affects other parts of the **ecosystem**. Nature's schedule gets messed up when a flower blooms before the butterflies that pollinate it have hatched. Or when caterpillars emerge before the baby birds that eat them have hatched.

What can we do? When everyday people like you collect and share observations (called community science), scientists can use your data to track changes in ecosystems. Studying changes in plant life cycles helps them understand **climate change** and look for solutions to problems.

CRITICAL THINKING

1

How can phenology help farmers make decisions?

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2

Is one day of unusual humidity in winter an indicator of climate change? Explain why/why not. What does indicate climate change?

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3

How can observations by everyday people in their communities help scientists?